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	CENTRAL INTELLIGENCE AGENCY	
ì	INFORMATION REPORT	
COUNTRY	USSR	DATE DISTR. 7 May 54
SUBJECT	Soviet Progress in Electronics Equipment	NO. OF PAGES /7
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OF THE UNITED AND 794, OF TH	CONTENTS TO OR RECEIPT BY AN UNAUTHORIZED PERSON IS	VALUATED INFORMATION 25X1
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Г	A. General Assessment of Soviet Electronics	Progress.  German specialists 25X1
1.	were assigned, while in the USSR, a number of	basic problems in of very high
-	security level, never permitted to ha	roblems. no 25X1
	the same problems. not allowed to vi	ar, and in fact, sit the Soviet pro- classified Soviet
	files.	series of nighty routine 25X1
	specialized problems, and a number of technical problems, and discussed these with all organizational levels, including the outs	
	technical and scientific leaders,	of seen them in test_
	ing or prototype use. and nave millions	German equipment
	operational data.  at a distance, such as the SCR-584, Meddo and recognized them because of prior knowledge had good opportunities to compare our observe	Germans, 25X1
	what worked on. Thus,	al and operational
	background necessary for our work and withhel	d by the Soviets.  as against subsequen25X1
	developments and against unguarded remarks by	al picture of Soviet
	efforts and advances in the field of electron	25X1
		25X1
	AND CONTRACTOR OF CHARLES	23X1
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25 YEAR RE-REVIEW

Russian history

25X1

preconditioned the Soviets to anticipate the need to trade space and manpower for time to build their defense. This is the basic

measures (jamming) to navigation.

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reason for moving their strategic activities far inland (ie, Central Siberia and other distant areas) and making all their research and production institutes as nearly self-sufficient as possible. However, the last war taught them that it is offense that wins the war, and that a well-developed offense can perhaps remove or reduce the need for defense. They have been on the offense in "cold war" -- they are apt to rely on offense in actual

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In spite of the general advances in electronics, there are, serious weaknesses in the Soviet electronic picture. One of these is the unbelievably low technological level of the large masses of people in the USSR. Admiral Berg, with the assistance of Captain Shchurin and others, has been working hard to reach the Soviet masses by such popular-level Soviet publications as Radiotekhnika. In the USSR, however, even Radiotekhnika is highbrow stuff and Admiral Berg's efforts have barely scratched the surface. The masses are blissfully ignorant of the important role which technology as a whole, and electronics in particular, can have in the private life of the people

And yet it is from these ignorant masses that the Soviets will have to draw the human material for their electronic specialists, and in case of war, for the low-level operating, maintenance and production personnel.

25X1

8. There is a very large dissipation of highly qualified manpower in the USSR as the result of the Soviets' decision to make all their important research, development and production units fully self-sufficient and independent. This might be an important factor in their defense plans, but it must lead to a large-scale duplication, overlapping and waste of specialists who could be assigned to more immediately productive duties.

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9. There are also serious gaps in the Soviet substantive sections of electronics. Perhaps, one of the most important is the continued scarcity of scientific and technological instrumentation. The Soviets have never been strong in this field, and the high rate of their post-war scientific and technological expansion placed such a heavy demand on laboratory equipments and production testing and control devices that the Soviets have not been able to cope with it. This is the basic reason for the Soviet purchases of such equipment from abroad. the Soviets will continue to be dependent upon the West in this field, for some time to come.

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the Soviets are weak at present in the field or servo-technique. Though strong in the theory of telemetering and remote control, they systematically vetoed any German proposal for the use of servo-technique,

25X1

result of the lack of proper experience by Soviet electronics specialists with the use of the precision techniques in their field. The same observations apply to the Soviet lack of precision goniometers in navigational systems.

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In spite of the strong interest of the Soviets in the advanced type of computers, the data handling procedures in the laboratories in production plants is also very primitive. At Fryazino the only devices used by the engineers are slide rules, graphic charts (nomograms) and abacus.

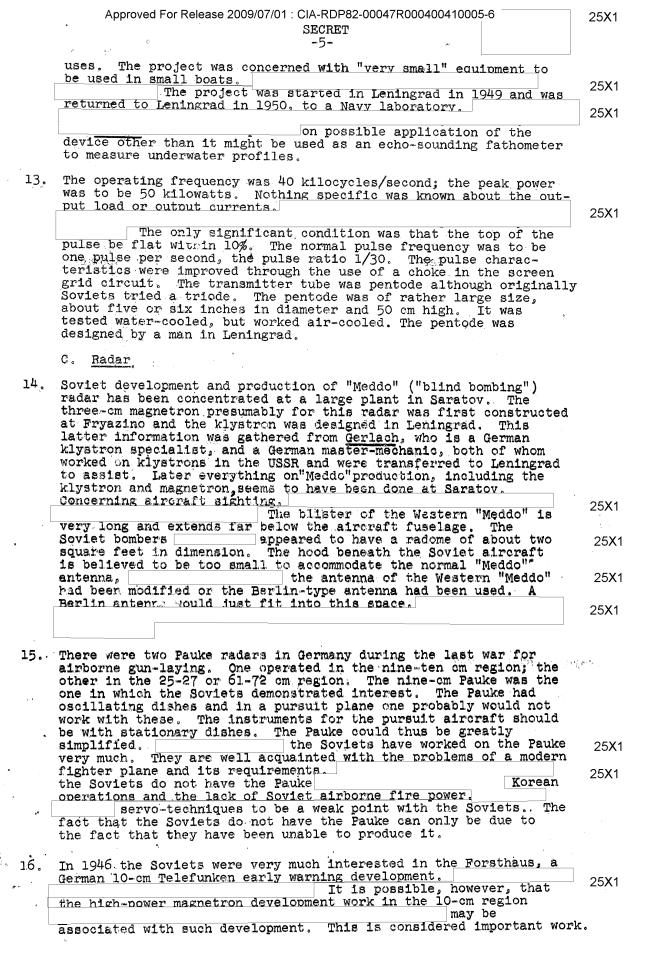
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B. Ultrasonic Developments.

M. ...

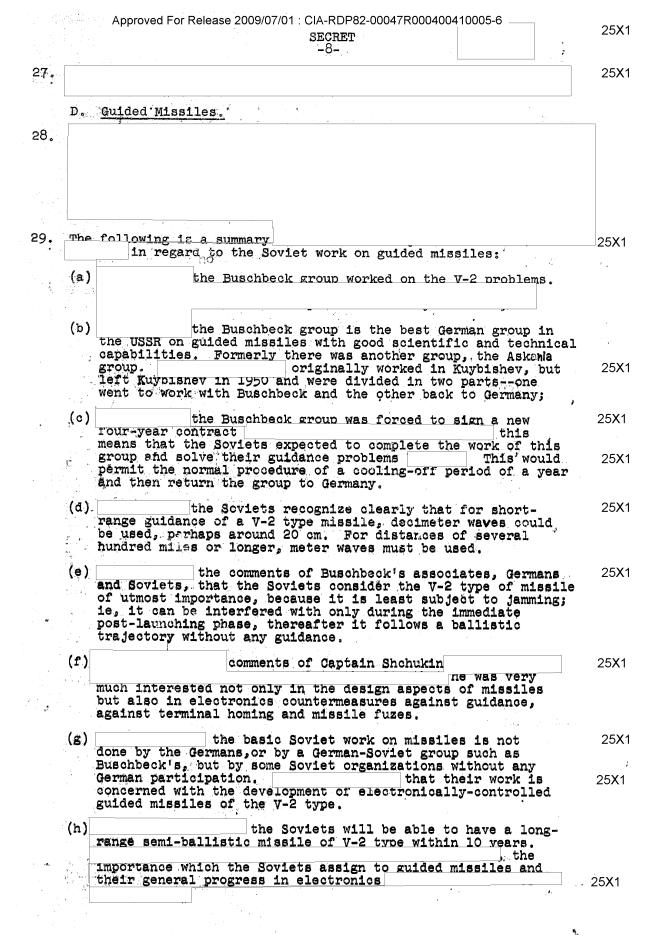
12. familiar with only one Soviet project 25X1

might be concerned with ultrasonic



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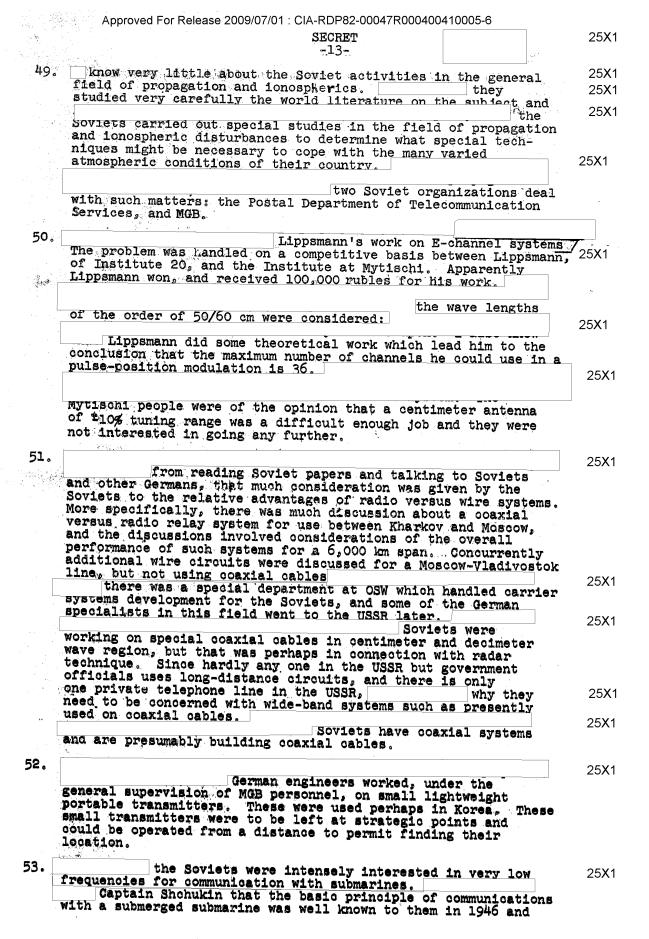
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4	-10-		
***	Buschbeck group.  from ballistic specialists, especially the related to an invention of a Soviet Naval of it in Institute 160. Apparently, therefore tube did not come originally from the guided it may well be applied to the special original original or the soviet development works are the soviet development works.	officer who worked on the interest in the missiles specialists.	25X1 25X1
	V-2 type of semi-ballistic missile.	3 - 3 - 3	
	E. Electronics Computer.		
37.	which Prof Gutenmacher was involved	computers is that in	25X1 25X1
	Gutenmacher is regarded by the Soviets as a specialist.  Gutenmacher is co	high-quality computer	25X1
		onsiderably short of ets overestimate him. er specialist must	25X1
	combination in the USSR. Prof Gutenmacher in the USSR who knows a little of both.	s the only person	25X1 25X1
20			20/(1
38.	Gutenmacher's analog computer was built for system of linear differential equations up to this computer was designed by Gutenmacher and There were perhaps no more than 10 of these of these, only three were in good working coused by Gutenmacher, one was near Mytischi a	o the sixth order. d built at Pensa. by the end of 1951.	) <u>.</u>
	It operated on a principl		25X1
	resistance discharge. The main problem was relays for the periodic short-circuiting of set of relays supplied originally were so un was nearly impossible to work with the equip these be replaced by good relays producthis made the computer useable. But, in fac not used. Its construction was good, but it	to obtain good condensers. The reliable that it ment. ed in Leningrad, and to the computer was	25X1 25X1
	wesknesses,	many design	25X1
39.	that Gutenmacher started (1951 development of a digital computer at his Mos This work is probably still September 19537 stage.	cow Institute.	25X1
40.	designed an anal	og computeran	
	electronic writer.	It was scheduled	
ſ	ror publication in the USSR,		25 <b>X</b> 1
Į	too complicated, and most probably was not u	pment was considered sed.	
41.	lectures on computers to the members of the they could learn the fundamentals of analog	and digital computers.	25X1
	our institute there were good mathematicians engineers, and that they were well acquainted	of the fact that at and good electronics	25X1
	there appeared to	be no appreciation	25X1 25X1
	of the importance of computers in technologic work.	cal and scientific	
	F. Electronic Navigation.	;	
42.	immediately after the ethe highest priority effort in the USSR was a countermeasures, but that later this priority	given to electronics y position was	25X1
	shifted to long-range navigation. Soviet endeavor still occupies the most important electronics.	this field of	25 <b>X</b> 1

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	that they were able to carry on such communications before 1946 with a submarine submerged to the depth which left the tip of the antenna no lower than four meters below the surface. As a matter of fact, Captain Shchukin claimed that the Soviets did this before the end of the war. Soviet interest in "Goliath" and "Marius" was primarily due to the fact that these gave them additional transmitting facilities. Some questions came up in 1951 in Fryazino regarding the reproduction of tubes for the "Marius" transmitter. It is possible that the transmitter is in regular use now /September 19537. The Soviet interest in "Goliath," was due to special construction of its antenna which reduced the earth resistance of the antenna to 1/3 ohm.	25X1 25X1 25X1 25X1
54.	The Soviets were very active in broadcast jamming.	25 <b>X</b> 1
J <b>⊤.</b>	they might have 500 or more jamming transmitters. In this connection in Fryazino and in other places	25X1
	around Moscow, the Soviets have a very large number of communica-	Z3 <b>\</b> [
	tions antennae ("antenna forests"), the size of which exceeds anything in Germany,	051/4
	[18] [18] 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	25X1
55.	jamming foreign broadcasts they permit their engineers and mechanics to build their own radio receiving sets without any restriction on frequency coverage. As a matter of fact they sponsor and assist such activity.  Soviet engineers and mechanics were permitted and encouraged to	25X1
	draw upon some stock materials and components to build radio	25X1
	even managed to build himself a television receiver.	23/1
56.	There are three televisions stations in the USSR; in Moscow, leningrad and Kiev. The programs, are of good quality. each station has its own radio station and that the systems are not inter-connected by cables or other methods. A few television receiving antennas were seen around Moscow and Fryazino. All were of the simple dipole type-no elaborate antennas were noted for such reception.	25X1 25X1
	H. Proximity Fuzes,	
	The second secon	
57.	the Soviets were not producing subminiature tubes	25 <b>X</b> 1
	for use in proximity fuzes and had no proximity fuzes.  Captain Shchukin was very much interested in countermeasures	
	against proximity fuzes; that as early as 1945 he had sub- miniature type tubes and was much interested in having these copied; and that Institute 160 made no copies of subminiature	v -
e de la companya de l	tubes, although it was given a job, in 1949 or early 1950, to	
<b>-0</b>	build special production equipment for such tubes.	051/4
58.	some thinking, and talking to other Germans returned from the USSR,	25X1 25X1
	have been producing both the subminiature tubes and some proximity fuzes at Kalinin. the Kalinin plant was	25X1
	ready for production in 1949/50 and that it handled only	25X1
	specialized subminiature tubes and associated equipment* the manufacture of subminiature parts for	25X1
		20/(1
		25 <b>X</b> 1
New York		23/(1

interested in this kind of development. It is probably designed both for protection against illegal transmissions within their country and intercept of external transmissions. The short

Both the Navy and the police are

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